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EXAMINER

VANOY, TIMOTHY C

ART UNIT

PAPER NUMBER

1754

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Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09-758,132

Applicant(s)

HOKE et al.

Examiner

VANOT

Group Art Unit

1754

— The MAILING DATE of this communication appears on the cover sheet beneath the correspondence address —

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE THREE MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, such period shall, by default, expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

☒ Responsive to communication(s) filed on MAILED FEB. 6, 2002

☐ This action is FINAL.

☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

## Disposition of Claims

☒ Claim(s) 1-8 is/are pending in the application.

Of the above claim(s) is/are withdrawn from consideration.

☐ Claim(s) is/are allowed.

☒ Claim(s) 1-8 is/are rejected.

☐ Claim(s) is/are objected to.

☐ Claim(s) are subject to restriction or election requirement

## Application Papers

☐ The proposed drawing correction, filed on is ☐ approved ☐ disapproved.

☐ The drawing(s) filed on is/are objected to by the Examiner

☐ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. § 119 (a)-(d)

☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119 (a)-(d).

☐ All ☐ Some\* ☐ None of the:

☐ Certified copies of the priority documents have been received.

☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.

☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a))

\*Certified copies not received: \_\_\_\_\_

## Attachment(s)

☐ Information Disclosure Statement(s), PTO-1449, Paper No(s). \_\_\_\_\_

☐ Interview Summary, PTO-413

☐ Notice of Reference(s) Cited, PTO-892

☐ Notice of Informal Patent Application, PTO-152

☐ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Other \_\_\_\_\_

Office Action Summary

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

The person having "ordinary skill in the art" has the capability of understanding the scientific and engineering principles applicable to the claimed invention. The references of record in this application reasonably reflect this level of skill.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the Examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. The Applicants are advised of the obligation under 37 C.F.R. 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for

the Examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1, 2 and 6 are rejected under 35 USC 103(a) as being unpatentable over EP 0 351 036 A1 to DeAngelis et al.

EP 0 351 036 A1 discloses a catalytic composition and a method for making a catalytic composition useful for the purpose of removing contaminants, such as carbon monoxide; hydrocarbons and nitrogen oxides, out of a gas (please see pg. 2 lns. 38-42 and the data set forth in Table 2 on pg. 6), wherein pg. 4 lines 37-44 and Example 1 set forth that the catalytic composition was made by the process comprising:

dissolving the catalytic components (i. e. the "first material" of Applicants' claim 1) (which may include the manganese oxide of Applicants' claim 6) in water and working up the catalytic components into a spray dried composition;

adding a binder (i. e. the "second material" of Applicants' claim 1) and (optionally) stainless steel powder (i. e. the "substrate" of Applicants' claim 1) to the catalytic spray-dried composition: please see pg. 4 lns. 39-41 (the "silicone" of Applicants' claim 1 is expressly mentioned as one of a plurality of binders on pg. 3 lns. 46-48) and extruding this mixture into a honeycomb.

The honeycombed catalytic structure is then placed within the exhaust duct (i. e. the "structure" of Applicants' claim 1) of an internal combustion engine (please see pg. 3 lns. 15-16).

The difference between the Applicants' claims and EP 0 351 036 A1 is that Applicants' claim 1 call for the use of either clay or silicone (evidently, as the binder),

whereas pg. 4 lns. 37-44 in EP 0 351 036 A1 reports the use of methyl cellulose and/or acrylics as the binder).

Pg. 3 lns. 46-49 in EP 0 351 036 A1 renders obvious and known a number of different materials which can act as binders, to include (not only the methyl cellulose of the process described on pg. 4 lns. 37-44 in EP 0 351 036 A1), but also the silicone of Applicants' claim 1.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made *to modify* the process described on pg. 4 lns. 37-44 in EP 0 351 036 A1 *by substituting* the silicone disclosed in pg. 3 lns. 46-49 in EP 0 351 036 A1 *in lieu of* the methyl cellulose and/or acrylic binders used in the process described on pg. 4 lns. 37-44 in EP 0 351 036 A1 *because* the disclosure set forth on pg. 3 lns. 46-49 in EP 0 351 036 A1 fairly suggests to one skilled in the art that the "methyl cellulose" mentioned on pg. 4 ln. 41 in EP 0 351 036 A1 and the Applicants' "silicone" are functionally equivalent binders, and the substitution of one known functional equivalent in lieu of the another known functional equivalent is submitted to be obvious.

The difference between the Applicants' claims and Example 1 set forth in EP 0 351 036 A1 is that Applicants' claim 6 calls for the use of manganese dioxide as the catalytic component.

Pg. 2 lns. 34-35 in EP 0 351 036 A1 discloses that oxides of base metals (to include manganese) may (evidently) be used as the catalyst component.

It would have been obvious to one of ordinary skill in the art at the time the invention was made *to modify* the process described in Example 1 in EP 0 351 036 A1 *by*

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*using* the manganese oxide described on pg. 2 Ins. 34-35 in EP 0 351 036 A1 *as the catalytic component* in the process and composition taught in Example 1 in EP 0 351 036 A1, in the manner called for in at least Applicants' claim 6, *because* the disclosure set forth on pg. 2 Ins. 28-36 in EP 0 351 036 A1 fairly teaches that manganese oxide is one of the catalytic components that may be used in the method and composition of EP 0 351 036 A1.

Claims 1-3, 6 and 8 are rejected under 35 USC 103(a) as being unpatentable over EP 0 351 036 A1 to DeAngelis et al. in view of the English translation of DE 40 07 965 A1 to Hager.

Claims 1, 2 and 6 are rejected under 35 USC 103(a) as being unpatentable over EP 0 351 036 A1 for the reasons set forth in the previous rejection.

The difference between the Applicants' claims and EP 0 351 036 A1 is that Applicants' claims 3 and 8 call for spraying the catalytic composition on the surface of a metal surface, such as an auto radiator.

The English translation of DE 40 07 965 in its claim 1 and Fig. A discloses and illustrates a method for applying a catalytic composition comprising manganese oxide onto a vehicle radiator by spraying the catalytic composition onto it.

It would have been obvious to one of ordinary skill in the art at the time the invention was made *to spray* the catalytic composition of EP 0 351 036 *onto a vehicle radiator*, in the manner embraced in the scope of Applicants' claims 3 and 8, *because* the disclosure set forth in claim 1 and Fig. A in DE 40 07 965 fairly teaches that such

manganese oxide-based catalytic compositions are sprayed onto vehicle radiators, etc., and in so doing one would achieve the taught advantages of removing pollutants out of the air when the vehicle is in operation, as fairly suggested on pg. 1, 3rd full paragraph and the paragraph bridging pages 1 and 2 in DE 40 07 965.

Claims 1-8 are rejected under 35 USC 103(a) as being unpatentable over EP 0 351 036 A1 to DeAngelis et al. in view of the English translation of DE 40 07 965 A1 to Hager and U. S. Pat. 5,208,198 to Nakano et al.

Claims 1, 2, 3, 6 and 8 are rejected under 35 USC 103(a) as being unpatentable over EP 0 351 036 A1 and the English translation of DE 40 07 965 A1 to Hager, for the reasons set forth in the previous rejection.

The difference between the Applicants' claims and the process and composition resulting from the combination of EP 0 351 036 A1 and DE 40 07 965 A1 is that Applicants' claims 4, 5 and 7 call for the use of a clay as the binder (whereas Example 1 in EP 0 351 036 A1 discloses the use of an acrylic as the binder).

U. S. Pat. 5,208,198 is directed to the same art of making catalysts useful for removing the same NO<sub>x</sub>, CO, etc. out of a gas (please see col. 4 lns. 17-26), wherein the catalyst was made with a binder, such as clay to include attapulgite, to (evidently) mold/adhere the catalytic materials into a cohesive catalytic composition.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made *to modify* the process and composition obvious from EP 0 351 036 A1 and DE 40 07 965 A1 to Hager *by substituting and/or including* the clay adhesive

disclosed in col. 4 lns. 4-16 in U. S. Pat. 5,208,198 in lieu of or in combination with the silicone adhesive mentioned on pg. 3 lns. 46-48 in EP 0 351 036, in the manner called for in at least Applicants' 4, 5 and 7, *because* the courts have already determined that the substitution of one known functional equivalent in lieu of another known functional equivalent (in this case, the clay binders described in col. 4 lns. 4-16 in U. S. Pat. 5,208,198) in lieu of another known functional equivalent (in this case, silicone binders mentioned on pg. 3 lns. 46-50 in EP 0 351 036) is obvious even in the absence of an express suggestion to make such a substitution: please note the discussion of the *In re Ruff*, 256 F.2d 590, 118 USPQ 340 (CCPA 1958) and *In re Fout*, 675 F.2d 297, 213 USPQ 532 (CCPA 1982) court decisions set forth in section 2144.06 in the MPEP (8<sup>th</sup> ed.) for further details.

### ***Response to Arguments***

The Applicants' arguments submitted in their Amendment mailed on Feb. 6, 2002 have been considered, but are not persuasive.

a) *The Applicants argue that EP-036 integrates their catalyst-agglomerate bodies into their porous structure by mixing the catalyst-agglomerate bodies with a batch material, which is formed into a structure via extrusion, rather than adhering catalyst onto the support.*

No distinction is seen or has been shown between the exhaust pipe in which the monolith is adhered, which is obvious from pg. 2 lns. 15-16 in EP 0 351 036 A1 and the



"structure" of Applicants' claim 1.

No distinction is seen or has been shown between the spray-dried catalytic composition mentioned on pg. 4 lns. 37-44 in EP 0 351 036 A1 and the "first material" of Applicants' claim 1.

No unobvious distinction is seen or has been shown between the binders mentioned on pg. 4 lns. 37-44 in EP 0 351 036 A1 and the Applicants' "second material" set forth in their claim 1.

No distinction is seen or has been shown between the stainless steel powder set forth on pg. 4 ln. 40 in EP 0 351 036 A1 and the "substrate" of Applicants' claim 1.

b) *The Applicants argue that EP-036 teaches away from adhered catalyst compositions by emphasizing their associated bonding failures and processing complexities ("fragile" coatings are the product of "multi-step processes" and tend to "flake off" during shipping, handling and normal use: see pg. 2 lns. 7-16 in EP-036).*

The portion of EP-036 that the Applicants discuss is directed to the prior art compositions, and pg. 2 ln. 37 in EP 0 351 036 reports that the object of their invention is to avoid the disadvantages of the prior art.

c) *The Applicants argue that the process of EP 0 351 036 A1 burns out the organic binder (i. e. the adhesive) to provide microchannels and passageways in the structure (pg. 3 lns. 4-6 and pg. 4 lns. 34-36), thus, the catalyst-agglomerate bodies of EP-036 are not coated on a substrate as required in the present claims – nor are they even adhered to a*

*batch material.*

No distinction is seen or has been shown in as much as pg. 4 Ins. 42-44 in EP 0 351 036 A1 reports that binders, such as acrylics, may be added to provide enough consistency to the agglomerates so that they do not disintegrate during extrusion. The specific mention of "acrylics" set forth in EP 0 351 036 A1 is not exhaustive of all of the binders embraced and contemplated by the word "binders", and "binders" is broad enough to embrace any substance known in this art to act as a binder, to include the "silicone" of the Applicants' claims, as evinced by the explicit reference to "silicone" as a binder on pg. 3 Ins. 46-49 in EP 0 351 036 A1. The disclosure of EP 0 351 036 A1 does not stop at the burning out of the organic binders discussed on pg. 4 Ins. 29-36 (and mentioned in the Applicants' argument), but proceeds to describe the addition of binder to the resulting composition (evidently) to achieve the same advantage of improving the adhesion of the catalyst.

d) *The Applicants argue that in light of EP-036's express teaching away from adhering catalysts to substrates, it is difficult to imagine what incentive one skilled in the art would have to modify the disclosure of EP-036 by the teachings of DE-965.*

The teaching set forth on pg. 4 Ins. 42-44 in EP 0 351 036 A1 that binders are added (to the catalyst composition) to provide enough consistency to the agglomerates so that they do not disintegrate is not an express teaching away from adhering catalysts to substrates. A binder is used to adhere the catalyst onto what may be stainless steel powder (i. e. the Applicants' "substrate"); please see pg. 4 Ins. 39-44 in EP 0 351 036 A1.

e) *The Applicants argue that it is not evident why one skilled in the art would select the clay of US-198 as a "functionally equivalent" binder for use as a binder in the process of EP-036 because the primary purpose of the binder in EP-036 is to provide porosity and to serve this function it must be burnt out during the sintering step. However, clay materials are highly heat resistant and would not burn out during the sintering step – thus, they could not be substituted for the organic binders of EP-036.*

The "primary purpose" of the binder (i. e. the "second material" of Applicants' claim 1) set forth on pg. 4 ln. 41 is to adhere the catalyst composition (i. e. the "first material" of Applicants' claim 1) onto the surface of the stainless steel powder (i. e. the "substrate" of Applicants' claim 1), and there is nothing in the discussion of the coating/adhering step set forth on pg. 4 lns. 37-44 in EP 0 351 036 A1 teaching or suggesting that the binders used therein must be sintered or burned out to provide porosity. The argued sintering step is not required in the process described on pg. 4 lns. 37-44 in EP-036, so that the clay adhesive of US-198 can be successfully used in that process as a binder.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Timothy C. Vanoy whose telephone number is 703-308-2540. The examiner can normally be reached on 8 hr. days.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven Griffen can be reached on 703-308-1164. The fax phone numbers

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for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.

Timothy Vanoy/tv

*Timothy Vanoy*  
Timothy Vanoy

Mar. 28, 2002

Patent Examiner

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